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tion of the position of the eye, yet in others the pigment is deposited there as elsewhere, so that all external trace of the eye is finally lost."

Mr. W. E. Ritter has investigated the pineal eye in several lizards from the western states.³ The species studied are *Phrynosoma douglassii*, *Ph. cornuta*, and *Uta stansburiana*, which are described at some length. The author upon morphological grounds is willing to accept the view that the organ in question was a visual structure, and that, contrary to Leydig, its function was not primarily that of a portion of the lymph system, although it may have secondarily acquired the latter character. The conclusion which one comes to after reading the literature is that the ontogeny of the whole region must be carefully followed before the question can be settled.

A Migration of Butterflies.—While sailing up the Gulf of Mexico from St. Andrew's Bay to Pensacola, Florida, on the 14th day of February last, I noticed a great many butterflies passing north. We were from five to ten miles from shore, and the butterflies all came from the south. I was at a loss to know just where they could come from, there being no land to the south nearer than Cuba and Central America. Would it be possible for them to fly such a distance? I could not procure a specimen, so cannot say what species they were; but for size and general appearance they compared quite favorably with the fritillaries. They certainly were migrating north, for hundreds passed us during the day.—A. H. BOIES.

BOTANY.

Saccardo's Suggestions to Phytographists.¹—The extensive experience which I have gained in the elaboration of my "Sylloge Fungorum" convinces me of the utility, I may say the necessity, of following in the description of plants certain oft-neglected rules. The following are recommended:

1. It is necessary that the botanist who describes with minute and involved details new species from morphological and biological stand-points should append thereto careful and comparative diagnoses

³ Bull. Mus. Comp. Zool., XX., No. 8, 1891.

¹ Rathschläge für die Phytographen, insbesondere die Kryptogamisten. Hedwigia, Bd. XXX., Heft 1, 1891.

(preferably in Latin) according to phytographic rules. Indeed, it is very difficult and often very uncertain to seek out in the multitude of details the essential and distinctive characters.

2. The diagnosis is with certain authors (especially among the cryptogamists) extraordinarily detailed and prolix; in others too laconic. A good diagnosis should give in a clear and careful statement only the essential and distinctive characters; all observations concerning details should be given after the diagnosis; for new species it is necessary to give the relationships with the nearest related known species. Whoever determines new species knows how much time it takes if he has to do with very prolix diagnoses without reference to relationships.

3. Experience has already shown, at least for the Cryptogams, that relative to authority it is very useful to give in brackets the author who first described the concerned species under other genera. It is always necessary to subjoin the name of the author who has transferred the species from the original genus to another, for otherwise one must assume that the writer of the treatise in which the combination of names is cited is also the author of this combination. We find, for example, in Winter's works, names as follows: "*Sphaerella convexula* (Schwein.), Syn. *Sphaeria convexula* Schwein." If the name of Thümen is not added after the parentheses we must assume that Winter is the author of the combination, and then we should have, according to the rules of other botanists, the two expressions: *Sphaerella convexula* (Schwein.) Wint., or *Sphaerella convexula* Wint., both of which are incorrect. But if we say *Sphaerella convexula* (Schwein.) Thüm., we have the entirely new information that Schweinitz established the species and Thümen transferred it to the proper genus.

4. In the description of parasitic Cryptogams the host plants (or animals) are to be given with their technical Latinized nomenclature. The common names (English, Italian, German, etc.) are often difficult to identify.

5. In measuring organs, microscopic or macroscopic, one system, the metric, should be employed; for microscopical measurements the micromillimetre, or mikron (μ) is suggested in place of fractions. The different measures and fractions are often the source of error or doubt.

6. For concise statements of the dimensions of microscopic organs it is suggested (as it is moreover done in manifold ways) to write first the figure of the length, then that of the greater breadth, the two connected by the sign $\asymp$, and the character μ omitted; for flat organs

a third figure can be added for the thickness ; for instance, spore $15 \supset 4$ signifies spores 15μ long and 4μ broad and thick ; spore $15 \supset 4 \supset 2$ signifies spores 15μ long, 4μ broad, and 2μ thick. Some authors use in place of the character $\supset$ (which I proposed and have used since 1872) the characters $=$, $:$, $\times$, which have in mathematics other and fixed meanings. For macroscopic organs one must give the units of measurement, m., cm., mm., and the parts measured.

7. In designating plant groups feminine forms are used (Dicotyledones, Ranunculaceæ, Anemoneæ, etc.). The same should be done in the Cryptogams ; if we say Sphæriaceæ, Mucedineæ, Hydneæ, we should also necessarily say Pyrenomyceteæ, Hyphomyceteæ, Hymenomyceteæ, and not Pyrenomycetes, Hyphomycetes, Hymenomycetes, as many do.

8. The colors of plants, especially those of the corolla, of fungi, of spores, are often inaccurately described. It were well to use an exact nomenclature which is founded on normal specimens. I shall publish for this purpose a Chromotaxy which I hope will be of great use.

9. In respect to the nomenclature of the fruits and spores of fungi it would be expedient to use only the following terms, which are already adopted by most mycologists: Hymenomyceteæ: pileus (which form it also possesses), basidia, sterigmata, sporæ, cystidia. Gasteromyceteæ et Myxomyceteæ: peridium, gleba, capillitium, flocci, sporæ. Uredineæ: sorus, uredosporæ, teleutosporæ, mesosporæ, pseudoperidium, æcidiosporæ, paraphyses. Ustilagineæ: sorus, sporæ. Phycomyceteæ: oogonia, oösporæ, antheridia, spermatia, zygosporæ, azygosporangia, zoösporæ. Pyrenomyceteæ et Phymatosphæriaceæ: stroma, perithecium, loculus, ascus, sporidia, paraphyses. Discomyceteæ et Tuberoideæ: ascoma, gleba, ascus, sporidia, paraphyses. Schizomyceteæ: filamenta, baculi, cocci, endosporæ, arthrosporæ. Sphæropsidea: perithecium, basidia, sporulæ. Melanconieæ: acervulus, basidia, conidia (but not gonidia, a name which must be reserved for the lichens). Hyphomyceteæ: cæspitulus, sporodochium, hyphæ, sporæ.

From the germinating spore arises the promycelium, which commonly produces the sporidiola.—Translated by H. W. NORRIS.